AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Cancelled)

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Withdrawn) A method of synthesising the superconducting material of claim 1 comprising the step of utilising starting materials Mg, B, Si and C.

6. (Withdrawn) A method in accordance with claim 5, wherein the starting materials are powders.

7. (Withdrawn) A method in accordance with claim 6, wherein the powders consist of nanoparticles.

8. (Withdrawn) A method of synthesising the superconducting material of claim 1, comprising the a step of utilising starting materials Mg, B and SiC.

9. (Withdrawn) A method in accordance with claim 8, wherein the starting materials are powders.

10. (Withdrawn) A method in accordance with claim 9, wherein the powders consist of nanoparticles.

11. (Withdrawn) A method of synthesising the superconducting material of claim 1, comprising the step of utilising starting materials MgB_2 and SiC.

12. (Withdrawn) A method in accordance with claim 11, wherein the starting materials are powders.

13. (Withdrawn) A method in accordance with claim 12, wherein the powders consist of nanoparticles.

14. (Canceled)

15. (Canceled)

16. (Canceled)

17. (Canceled)

18. (Withdrawn) A superconducting material having formula $MgB_xTi_yC_z$, wherein X is a number in the range of 0 to 2 and greater than 0, Y is a number in the range of 0 to 1 and Z is a number in the range of 0 to 1, and wherein the sum of X, Y and Z is greater than or equal to 2.

19. (Withdrawn) A method of manufacturing a material capable of functioning as a superconductor, comprising the steps of

- mixing elemental magnesium and elemental boron with an amount of one or more of the group consisting of silicon carbide and titanium carbide, and
- heating mixture to sinter the mixture into a material capable of functioning as a superconductor.

20. (Withdrawn) A method of manufacturing a material capable of operating as a superconductor, comprising the steps of

- mixing elemental magnesium and elemental boron with an amount of one or more of the group consisting of elemental silicon, elemental carbon and elemental titanium, and
- heating mixture to sinter the mixture into a material capable of functioning as a superconductor.

21. (Withdrawn) A method in accordance with claim 20, wherein the mixture is heated to a temperature in the range between 650°C and 2000°C.

22. (Withdrawn) A method in accordance with claim 20, wherein the mixture is heated to a temperature in the range of 900-950°C.

23. (Withdrawn) A method in accordance with claim 20, wherein the elements are provided as powders.

24. (Withdrawn) A method in accordance with claim 23, wherein the powders consist of nanoparticles.

25. (Withdrawn) A method in accordance with claim 20, wherein the powders are groove-rolled into a tube manufactured from a material of one or more of the group consisting of iron (Fe), copper (Cu), nickel (Ni) and stainless steel prior to heating the mixture.

26. (Withdrawn) A method in accordance with claim 20, comprising the further step of cooling the resultant material to the temperature of liquid nitrogen, to render the material capable of superconducting.

27. (Withdrawn) The method of synthesizing the superconducting material of claim 1, comprising a step of utilizing starting materials MgB_2, Si and C.

28. (Withdawn) The method in accordance with claim 27, wherein the starting materials are powders.

29. (Withdrawn) The method in accordance with claim 28, wherein the powders consist of nanoparticles.

30. (Currently Amended) The superconducting material of claim [[1]] 35, wherein X equals 2, and Y is a number greater than or equal to 0.055 and less than or equal to 0.33.

31. (Previously Presented) The superconducting material of claim 30, wherein Y is a number equaling 0.055, 0.11, 0.22, or 0.33.

32. (Currently Amended) The superconducting material of claim [[1]] 35, wherein X is a number greater than or equal to 0.5 and less than or equal to 1.98, and Y is a number greater than or equal to 0.02 and less than or equal to 1.5.

33. (Previously Presented) The superconducting material of claim 32, wherein the values for X and Y are selected from the group consisting of: X equal to 1.98 and Y equal to 0.02, X equal to 1.95 and Y equal to 0.05, X equal to 1.9 and Y equal to 0.1, X equal to 1.85 and Y equal to 0.15, X equal to 1.8 and Y equal to 0.2, X equal to 1.5 and Y equal to 0.5, X equal to 1.0 and Y equal to 1.0, and X equal to 0.5 and Y equal to 1.5.

34. (Currently Amended) A magnesium boride superconducting material with enhanced superconductor properties, the material including a silicon carbide dopant.

35. (New) The superconducting material of claim 34 having a formula $MgB_x(SiC)_y$, where

X is a number greater than 0 and less than or equal to 2, and

Y is a number greater than 0 and less than or equal to 2.

36. (New) The superconducting material of claim 35, wherein X is a number greater than or equal to 1 and less than or equal to 2, and Y is a number greater than 0 and less than or equal to 1.

37. (New) The superconducting material of claim 35, wherein X is a number greater than or equal to 1.2 and less than or equal to 1.8, and Y is a number greater than or equal to 0.2 and less than or equal to 0.6.

38. (New) A superconductor with enhanced semiconductor properties including current density, irreversibility field and flux pinning properties, the superconductor incorporating a magnesium boride superconducting material doped by silicon carbide.

39. (New) A method for producing a superconducting material having enhanced superconductor properties, the method comprising:

- doping silicon carbide into a magnesium boride superconducting material.

40. (New) The method according to claim 39, wherein the superconducting material has a formula $MgB_x(SiC)_y$, where

X is a number greater than 0 and less than or equal to 2, and
Y is a number greater than 0 and less than or equal to 2.

41. (New) The method for producing a superconducting material according to claim 39, comprising manufacturing the superconducting material in a form of a pellet by:

- mixing magnesium boride and silicon carbide powders by grinding or milling;
- pressing the resulting mixture into pellets;
- loading the pellets into an iron tube;
- heating the iron tube in an inert gas atmosphere to a temperature in a range of about 650°C to about 950°C for a term of about 10 minutes to about 10 hours; and

– cooling the resulting superconducting material to room temperature.

42. (New) The method according to claim 41, wherein the cooling of the resulting superconducting materials is provided by quenching with liquid nitrogen.

43. (New) The method according to claim 39, comprising manufacturing the superconducting material in form of a wire by:

- mixing magnesium boride and silicon carbide powders by grinding or milling;
- loading the resulting mixture into an iron tube;
- groove-rolling the iron tube into wire;
- heating the iron tube in an inert gas atmosphere to a temperature range of about 650°C to about 950°C for a term of about 10 minutes to about 10 hours; and
- cooling the resulting superconducting material to room temperature .

44. (New) The method according to claim 43, wherein the cooling of the resulting superconducting materials is provided by quenching with liquid nitrogen.

45. (New) The method according to claim 39, comprising manufacturing the superconducting material in bulk form, thin film or tape.